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THE BALTIMORE ORIOLE AND CARPENTER-BEE.

BY REV. SAMUEL LOCKWOOD, PH. D.



DOUBTLESS the ancients were as honest as the moderns. But were they as painstaking and therefore as trustworthy? Those olden treatises on Nature stood upon a sort of exacting didactic dignity of their own, even when they discoursed of marvels akin to

“The Anthropophagi and men whose heads
Do grow beneath their shoulders!”

It has always been easier to imagine than observe. Thus has instinct too long been regarded in the beast as the functional equivalent of reason in man; as if man had no instinct, and the beast no reason.* And how vitiating an element has this proved in our natural theology. How many believe the pseudo-axiom that of necessity every bird builds its nest to-day as did its ancestors six thousand years ago? Is not instinct transmitted, or inherited habit? And so there may be relatively new instincts as well as old ones. The trained animal—the setter, the pointer, the retriever—transmits to its offspring those traits which have become the habit, the resultant of long training. The cow migrates to Norway and, contrary to the bovine instinct, eats the fucus off the sea rocks, and finally becomes an eater of fish. Her offspring take to it naturally, that is, instinctively. The mountain parrot, (*Nestor notabilis*) called by the Maories, Kea, is a simple honey

* Pythagoras taught that animals had reason but no mind.—Eds.

eater. This bird has lately found out that mutton is good; and actually combines in flocks to attack sheep, eating the live flesh from the animal's back and sides.

But what has all this to do with orioles and bumble bees? Let us see.

At the beginning of June, I received a small package from Rev. Dr. Campbell, President of Rutgers College. It contained several carpenter-bees, each with its head detached. All the president could tell me, was that they were picked up under a tree in the college campus; and an explanation was asked of the phenomenon. A good deal puzzled, I ventured a provisional statement, a sort of hypothesis which, at least, had the merit of seeming probable. It was shot at a venture and, like such shots generally, it hit wide of the mark. I had just closed quite a long course of lectures on natural history in the grammar school of that institution, and this question, becoming somewhat general, made me feel like one put on his mettle, so I went at it resolved to work out the case if possible.

In the campus were two beautiful horse-chestnut trees, *Æsculus hippocastaneum*. They were large trees, and resplendent with their dense panicles of bloom; every one, as it stood gorgeously upright, seemed a thyrsus worthy the hand of a god. These trees formed the great attraction of honey-seeking insects. It was only under these trees that the headless bees were found, but there they lay in hundreds; the ground was literally speckled with them. Strange to say, the slain insects consisted of but one species and one sex. They were carpenter-bees, of the species *Xylocopa Carolina*, and all were males. Now these males are stingless, and have a white face. I picked them up by handfuls, all headless, the heads lying on the ground. I searched diligently for a head without that characteristic white face which designates the stingless male, but could not find one. Indeed, I entertain no doubt that, of the large number of these decapitated bees, every one was a stingless male. One fact was now apparent, the massacre was made up among the flowers, while the insects were in quest of honey. But what had done it? How was it done? And for what purpose? On these three questions the whole case rested. If they could be answered, the mystery would be solved.

It appeared under the microscope that the severance of the head from the body was clean and not bunglingly done. The head was

not pulled nor twisted off, but cut or snipped off and always at one place, the articulation. But so far the whole affair seemed the result of sheer wantonness, much as I have seen some vicious children beheading flies. The case had become intensely puzzling; for Nature is neither wanton nor wasteful. It seemed to me that no bird would do it, for what could be the object of such waste? Again, it seemed that no strictly aerial insect could do it. Indeed, for an insect to capture and decapitate this great carpenter bee while on the wing or among the flowers, it would require a rare combination, a powerful apparatus for attack and uncommon facilities of flight.

And now was disclosed another wonder. On opening one of these headless insects the body was found to be hollow. Then a number were opened, and every body was found in like manner to be empty. The fact was now apparent that the bodies of all these headless bees had been emptied after decapitation. They had been literally eviscerated at the annular opening made at the neck by the separation of the head. Not a wound nor a mark could be found anywhere on the body. I now began to suspect that the whole was the work of birds. Inquiry was made of the German janitor who seemed pleased to be able to give a direct answer, to the effect, that ever since the horse-chestnut flowers had come out, three or four very beautiful birds had come every day to the trees and had been killing the carpenter-bees. Under the circumstances this information was very opportune. He was not able to give an intelligible description of the birds; so I asked him to watch and shoot one for me, which he did the next day. It was a Baltimore oriole or golden robin (*Icterus Baltimore*). The specimen was a beautiful male, a last summer's bird, hence hardly a year old. Its plumage was perfect, but the colors not so deep as those of a more mature bird.

The Baltimore oriole is an insect and berry eating bird. But here was a new habit of a curious and interesting character. If the Kea turns from honey to flesh, we find our oriole preferring honey to insect food, and resorting to the most singularly ingenious and outré methods to procure it—and with what intelligence! When a boy, in common with his schoolmates the writer often captured the humble-bee, extracted the honey sac and sucked out its luscious contents. How did those four golden robins find out our boy secret? We should rather have said secrets

—for not only did we boys know where the honey lay, but we prided ourselves on knowing that the white-faced carpenter-bees could not sting. As we have shown, our orioles found out this fact also. In their operations they caught the bee on the flower. This of course was done with the bill. The victim was then transferred to one foot and securely held in the claws, while the head was snipped off; then the sharp, narrow bill and tongue were applied to extract the sac containing the valued sweets. From every point of view this new habit appears to us extraordinary; and if these orioles generally get into the secret, it must needs go hard with the carpenter-bees; at least with the stingless ones or, as Patrick observes, those of the male persuasion. And then when we look at the similarity of the acquired new habits in the two cases mentioned, how remarkable the parallelism of the epicurean instincts of the Australian and the American birds! In both cases is there a singular change of the food propensities, and an equally seeming cruel wantonness in gratifying the same. As the poor victims lay before me, I was drawn to think of the old legal barbarity expressed in the judgment, “to be hung, drawn, and quartered;” for, pitiful sight, in my very hand lay these decapitated and eviscerated objects still manifesting a vestige of life in the automatic movements of the legs of the body and the palpi of the head. May it not be asked, if the birds are learning the secrets, and practising the ways of men, and even like them acquiring more refined tastes, whither will the march of intellect lead? At any rate does there not seem to be some connection of our opening homily with orioles and bumble-bees?

NOTES ON THE VEGETATION OF THE LOWER WABASH VALLEY.

BY ROBERT RIDGWAY.

II. PECULIAR FEATURES OF THE BOTTOM-LANDS.

ABOUT the middle of September, 1871, I visited Foote's Pond, in Posey County, Indiana, and in company with my botanical friend Dr. Jacob Schneck, of Mt. Carmel, Illinois, spent a day in exploring